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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WHISENANT, ETHAN C	
ART UNIT	**PAPER NUMBER**
1634	

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/029,397	MURPHY ET AL.	
	Examiner	Art Unit	
	Ethan Whisenant, Ph.D.	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46 and 48-85* is/are pending in the application.

4a) Of the above claim(s) *55-82* is/are withdrawn from consideration.

5)☒ Claim(s) *54 and 83-85* is/are allowed.

6)☒ Claim(s) *1-46* is/are rejected.

7)☒ Claim(s) *48-53* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

NON-FINAL ACTION

1. On 26 SEP 03 the applicant was mailed a Notice of Allowability in this application indicating that Claims 1-54 and 83-85 were allowable. Now, following a standard review it has been noted that no Primary stamp or signature was on the Notice of Allowability. Upon further review, a substantial new question regarding the patentability of some of the claims has been discovered that must be addressed. **The indication of Allowability is hereby withdrawn.** A Non-Final Action follows : **Claim(s) 1-46 and 48-85** is/are pending with Claims 55-82 withdrawn from consideration as the result of a restriction requirement. Please note that the examiner has returned to the original Claim numbering in this case. **Any renumbering of the claims in the Notice of Allowability should be disregarded.**

35 USC § 112- 2ND PARAGRAPH

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

CLAIM REJECTIONS under 35 USC § 112- 2ND PARAGRAPH

3. **Claim(s) 34 and 41-45** is/are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 34 is indefinite because the phrase "different targeting nucleic acid " on line 2 lacks proper antecedent basis in Claim 1. Changing this phrase to "different targeted nucleic acid " would appear to overcome this rejection. Please clarify.

Claim 41 is confusing because it recites "cellulose twice. Please clarify.

Claim 43-44 is confusing because they recite that "the nonreacting substrate is cellulose" and "the nonreacting substrate is biotin". Is this as intended? It is noted that in Claim 41 "the nonreacting substrate is to comprises cellulose." Please clarify these claims, if necessary.

35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> **(a)** A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligations under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

CLAIM REJECTIONS UNDER 35 USC § 103

6. **Claim(s)) 1, 9-11, 14-16, 19-31, 33 and 35-40** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Urdea et al. [US 5,635,352 (1997)] in view of Cottingham [US 5,639,428 (1997)].

Urdea et al. teach all of the limitations of the method for isolating a targeted nucleic acid from a sample recited in Claim 1 except these authors do not explicitly teach discarding the targeted nucleic acid. See the figures of Urdea et al. and note Column 27 wherein these authors teach repeatedly washing the wells of their plates to remove unhybridized nucleic acids (i.e. isolating the targeted nucleic acid). As regards the limitation not taught by Urdea et al. (i.e. these authors do not teach discarding the targeted nucleic acid), note that, as evidenced by Cottingham, it was well known in the art at the time of

the invention to discard the a tube/composition comprising a molecular biological assay once the assay is completed. See, for example, the abstract. As regards the limitations set forth in Claims 9-11, see at least for example the tables in Columns 17-20 of Urdea et al. As regards Claims 14-16, see at least for example Figure 8 of Urdea et al.

In view of these findings and absent an unexpected result, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention to modify Urdea et al. wherein after the assay is completed the assay composition comprising the targeted nucleic acid is discarded (i.e. the targeted nucleic acid is discarded). The ordinary artisan would have been motivated to make this modification because it would have been very time consuming and exceedingly expensive to store and/or repurify the targeted nucleic acid. Furthermore, once the assay reasonably suggested by Urdea et al. in view of Cottingham is finished there is no need to retain the isolated nucleic acid.

As regards Claims 19-31, it is noted that neither Urdea et al. or Cottingham teach the exact location on the target nucleic acid wherein the bridging oligos hybridize. However, absent an unexpected result, with the positions/sequences recited, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention that the bridging oligos could be designed, with a reasonable expectation of success, to hybridize anywhere on the targeted nucleic acid.

Please note MPEP 2111.03 as regards the meaning of the transitional phrase "comprising" used in Claim 1. The transitional phrases "comprising", "consisting essentially of" and "consisting of" define the scope of a claim with respect to what unrecited additional components or steps, if any, are excluded from the scope of the claim. The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.); Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986); In re Baxter, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); Ex parte Davis, 80 USPQ 448, 450 (Bd. App. 1948) ("comprising" leaves "the claim open for the inclusion of unspecified ingredients even in major amounts").

7. **Claim(s) 2-8 and 32** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Urdea et al. [US 5,635,352 (1997)] in view of Cottingham [US 5,639,428 (1997)] as applied against Claim 1 and 14 above and further in view of Hogan et al. [US 5,541,308 (1996)].

Urdea et al. in view of Cottingham teach all of the limitations of Claims 2-8 and 32 except these

authors do not explicitly teach isolating ~~and detecting~~ rRNA. However, as evidenced by Hogan et al. it was well known in the art at the time of the invention to detect rRNA as a means to detect and/or quantify non-viral organisms. Please note that Hogan et al. explicitly teach detecting rRNA sequences from both eukaryotic and prokaryotic organisms reciting each of the rRNA types listed in Claim 3. See, at least for example, Column 2, beginning at about line 34. Also, as regards the limitations of Claim 5, note that Hogan et al. teach detecting fungal - ~~a eukaryote~~ - rRNA sequences (18S and 28S). As regards, Claims 7-8 please note that Hogan et al. list Enterococci - ~~a~~ gram positive bacteria - and both *E.coli* and *Neisseria gonorrhoeae* - gram negative bacteria.

In view of these findings and absent an unexpected result, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention to modify the assay reasonably suggested by Urdea et al. in view of Cottingham wherein the assay is used to isolated and detect rRNA sequences from both eukaryotic and prokaryotic organisms in order to detect those organisms recited by Hogan et al. Please note that substitution of one well known method/reagent with known properties for a second well known method/reagent with well known properties would have been *prima facie* obvious to the ordinary artisan at the time of the invention in the absence of an unexpected result. As regards the motivation to make the substitution recited above, the motivation to combine arises from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Support for making this obviousness rejection comes from the M.P.E.P. at 2144.07 and 2144.09.

As regards Claims 4 and 32, it is believed by the examiner, after reviewing the specification and a limited sequence search, that all of the rRNA sequences recited were known and are presumed to be present in the prior art. In view of this finding and absent an unexpected result, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention to modify the assay reasonably suggested by Urdea et al. in view of Cottingham and Hogan et al. wherein the assay is used to isolate and detect the known rRNA sequences recited in Claim 4. Again, please note that substitution of one well known method/reagent with known properties for a second well known method/reagent with well known properties would have been *prima facie* obvious to the ordinary artisan at the time of the invention in the absence of an unexpected result. As regards the motivation to make the substitution recited above, the motivation to combine arises from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Support for making this obviousness rejection comes from the M.P.E.P. at 2144.07 and 2144.09.

6. **Claim(s) 12-13** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Urdea et al. [US 5,635,352 (1997)] in view of Cottingham [US 5,639,428 (1997)] as applied against Claim 1 above and further in view of Weisburg et al. [US 5,324,632 (1994)].

Urdea et al. in view of Cottingham teach all of the limitations of Claim 12-13 except these authors do not explicitly teach isolating ~~and detecting a target nucleic acid~~ wherein the bridging region or the capture region is polypurine or polypyrimidine. However, as evidenced by Weisburg et al., it was well known in the art at the time of the invention, to hybridize two sequences via long stretches of polypurines or polypyrimidines. Absent an unexpected result, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention to modify the assay reasonably suggested by Urdea et al. in view of Cottingham wherein the assay comprises a bridging region or a capture region that is composed of only purines or only pyrimidines.

Please note that substitution of one well known method/reagent with known properties for a second well known method/reagent with well known properties would have been *prima facie* obvious to the ordinary artisan at the time of the invention in the absence of an unexpected result. As regards the motivation to make the substitution recited above, the motivation to combine arises from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Support for making this obviousness rejection comes from the M.P.E.P. at 2144.07 and 2144.09.

7. **Claim(s) 17** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Urdea et al. [US 5,635,352 (1997)] in view of Cottingham [US 5,639,428 (1997)] as applied against Claims 1, 14-15 above and further in view of Lewis et al. [US 6,270,973 (AUG 2001)].

Urdea et al. in view of Cottingham teach all of the limitations of Claims 17 except these authors do not teach multiplexing (i.e. isolating ~~and detecting~~ two or more target nucleic acids). However, as evidenced by Lewis et al. it was it was well known in the art at the time of the invention to multiplex hybridization type assays in order to simultaneously detect two or more target nucleic acids thereby increasing productivity. In view of these findings and absent an unexpected result, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention to modify the assay reasonably suggested by Urdea et al. in view of Cottingham wherein the assay is multiplexed. See, at least for example, Column 26, beginning at about line 60 wherein Lewis et al define multiplexing.

8. **Claim(s) 18** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Urdea et al. [US 5,635,352 (1997)] in view of Cottingham [US 5,639,428 (1997)] and Lewis et al. [US 6,270,973 (AUG 2001)] as applied against Claims 1, 14-15 and 17 above and further in view of Hogan et al. [US 5,541,308 (1996)].

Urdea et al. in view of Cottingham and Lewis et al. teach all of the limitations of Claim 18 except these authors do not teach, as regards Claim 18, an embodiment wherein one of the targeted nucleic acids is the largest rRNA in the sample while the second targeted nucleic acids is the second largest rRNA in the sample. However, Hogan et al. do teach detecting either the 18S or the 28S rRNA of fungi or the 16S and 23S of bacteria. In view of these findings and absent an unexpected result, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention to modify the assay reasonably suggested by Urdea et al. in view of Cottingham and Lewis et al. wherein both the fungal 28S rRNA and bacterial 23S rRNA are simultaneously isolated and detected in order to quickly and efficiently determine the cause of a particular illness in a patient. See at least for example, Column 2, beginning at about line 34 of Hogan et al.

9. **Claim(s) 41-45** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Urdea et al. [US 5,635,352 (1997)] in view of Cottingham [US 5,639,428 (1997)] as applied against Claims 1 above and further in view of Hornes et al. [US 5,512,439 (1996)].

Urdea et al. in view of Cottingham teach all of the limitations of Claim 41-45 except these authors do not teach an embodiment wherein the non reacting structure comprises a bead comprising a material selected from a defined group which includes cellulose. However, as the use of cellulose covered magnetic beads was well known at the time of the invention as evidenced by Hornes et al., it would have been, absent an unexpected result, *prima facie* obvious to the ordinary artisan at the time of the invention to modify the assay reasonably suggested by Urdea et al. in view of Cottingham wherein cellulose covered magnetic beads are utilized.

Please note that substitution of one well known method/reagent with known properties (i.e. the magnetic beads of Hornes et al.) for a second well known method/reagent with well known properties (i.e. microtiter plates) would have been *prima facie* obvious to the ordinary artisan at the time of the invention in the absence of an unexpected result. As regards the motivation to make the substitution recited above, the motivation to combine arises from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Support for making this obviousness rejection comes from the M.P.E.P. at 2144.07 and 2144.09.

As regards Claim 44, wherein the nonreacting structure is biotin, please note that the beads of Hornes et al. may comprise biotin.

10. **Claim(s) 46** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Urdea et al. [US 5,635,352 (1997)] in view of Cottingham et al as applied against Claims 1 above and further in view of

Shuber [US 5,633,134 (1997)].

Urdea et al. in view of Cottingham and Hornes teach all of the limitations of Claim 46 except these authors do not teach using a hybridization buffer comprising TMAC or TEAC . However, as the use of hybridization buffers comprising TMAC was well known at the time of the invention, as evidenced by Shuber et al., it would have been, absent an unexpected result, *prima facie* obvious to the ordinary artisan at the time of the invention to modify the assay reasonably suggested by Urdea et al. in view of Cottingham and Hornes e al. wherein the hybridization buffer for the assay comprised TMAC.

Please note that substitution of one well known method/reagent with known properties for a second well known method/reagent with well known properties would have been *prima facie* obvious to the ordinary artisan at the time of the invention in the absence of an unexpected result. As regards the motivation to make the substitution recited above, the motivation to combine arises from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Support for making this obviousness rejection comes from the M.P.E.P. at 2144.07 and 2144.09.

CLAIM OBJECTIONS

15. **Claim(s) 34, 48-53** is /are objected to because it/they is/are dependent upon a rejected independent base claim.

ALLOWABLE SUBJECT MATTER

11. **Claim(s) 34, 48-54 and 83-85** appear to be allowable over the prior art of record because as regards Claim 34, the prior art do not teach or reasonably suggest an embodiment wherein an individual bridging oligo comprises a first and second targeting region that are complementary to two different and distinct targeted nucleic acids as recited in Claim 34. Please note as regards the interpretation of Claim 34 the examiner has interpreted the phrase "a different targeting nucleic acid" as if it read "a different targeted nucleic acid." Neither do the prior art teach or reasonably suggest the invention of Claims 48-54 or Claims 83-85.

bridging oligo comprises a first and second targeting region that are complementary to two different and distinct targeted nucleic acids as recited in Claim 34. Please note as regards the interpretation of Claim 34 the examiner has interpreted the phrase "a different targeting nucleic acid" as if it read "a different targeted nucleic acid." Neither do the prior art teach or reasonably suggest the invention of Claims 48-54 or Claims 83-85.

CONCLUSION

15. **Claim(s) 54 and 83-85** is/are allowable while Claim(s) 1-46 and 48-53 is/are rejected and/or objected to for the reason(s) set forth above.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ethan Whisenant, Ph.D. whose telephone number is (571) 272-0754. The examiner can normally be reached Monday-Friday from 8:30AM -5:30PM EST or any time via voice mail. If repeated attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion, can be reached at (571) 272-0782.

The fax number for this Examiner is (571) 273-0754. Before faxing any papers please inform the examiner to avoid lost papers. Please note that the faxing of papers must conform with the Notice to Comply published in the Official Gazette, 1096 OG 30 (November 15, 1989).

ETHAN WHISENANT
PRIMARY EXAMINER

Art Unit 1634